Austin Led Consultants

DMX and Led power over ethernet

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PL-AT-TW1
Constant Current Tunable White LED driver with PoE 802.3af / 802.3at AutoSwitching

Product Description - PL-AT-TW1 – PoE powered LED driver

This LED driver in a compact module can be installed 328 ft away from a PoE injector or switch using Cat-5e cable. In most areas PoE installations do not require licensed electricians The PL-AT-TW1 is installed between a PoE switch and a LED panel light. The PL-AT-TW1 has low standby power, and is configurable for 300ma, 700 or 1000 ma of LED current requirements. The wide output voltage range of 9 to 50 volts fits the NEC / NFPA codes for low voltage wiring and allows almost any LED fixture to be used.

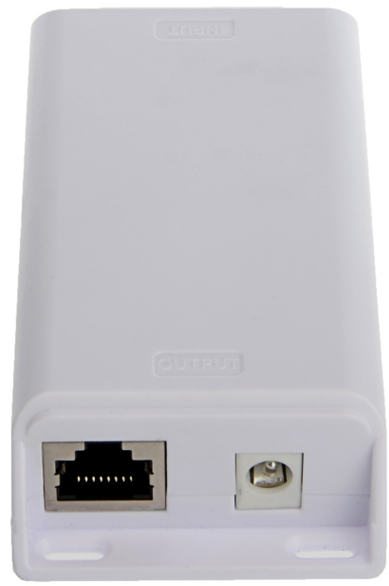
Intended for use with any 802.3at, 802.3af or passive Poe injector or switch, the output current automatically adjusts to match the PoE source. If connected to a 802.3af switch, the output current will be 300 ma, with 802.3at switches it will be 600 ma. If you work with passive injectors – we have a 802.3at bypass jumper to force higher power operation.

When used with a 802.3bt switch – two devices can be connected in series to use all 4 pairs of the Ethernet cable and double the wattage on one PoE port. Boost jumper allows 1000 mA output in 802.3at or passive mode.

The attached LED can be turned on/off and Dimmed from a SNMP type PoE switch or injector, or from a momentary switch like the AL-WS-M.

Specifications for PL-AT-TW1

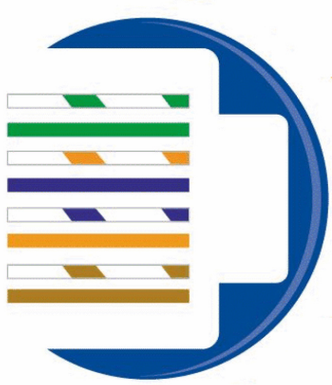
Power input	44 to 56 volts 802.3af or 802.3at or Passive PoE
RJ45 Input Connector	RJ45 standard connector mode A power only. Mode B passthru
RJ45 Output Connector	RJ45 standard: input pairs 4&5 and 7&8 are connected to pairs 1&2 and 3&6 on this output connector to allow two devices on one CAT-5e cable
RJ45 LED status	Green means PoE active, Amber means 802.3at
On/Off/Dim switch	The output RJ45 connector also has the connection to a RH-253 or AL-WS-M switch for On/Off/Dim
LED Output Voltage	9v to 50v 35 watts max
Output Power	a) with 802.3af max current 360 ma = 12 watts b) with 802.3at max current 660ma = 23 watts c) jumper selection for 1000 mA in AT mode
Auto power switching	Current reduced to 360 mA if 802.3af switch detected increases to 660 or 1000 ma if 802.3at
Inrush limiter	Built in – automatic
Hot Swap	LED load can be disconnected under power
802.3af keep alive	25% duty cycle 10mA load keeps the PoE port live
Output current	360 ma , 660 / 1000 ma auto or manual selection
LED output connector	TE 3 pin connector with spring load Common +, Warm White, Cool White
Pinout 802.3af / 802.3at	Pins 1,2 and 3,6 provide power either polarity Automatic power detection feature:
Protection	Reverse, short and static protection
Operating Temperature	0°C ~ 50°C



Smart Keep Alive

Keep Alive is the current needed to keep a PoE switch port from shutting down. Simple keep alive burns 500 mW when the LED is off. Our Smart Keep Alive reduces this to 100 mW using a 25% duty cycle.

RJ45 connector pinout



Pin	In	Out
1	PoE 1	PoE 2
2	PoE 1	PoE 2
3	PoE 1	PoE 2
4	PoE 2	NC
5	PoE 2	NC
6	PoE 1	PoE 2
7	PoE 2	Dim/Switch
8	PoE 2	Ground

PoE Power Input

Use a PoE switch or injector to supply power. It can be mode B 802.3af, 802.3at or 4 pair 802.3bt for up to 25 watts. Every 8 wire cat-5e cable can carry 2 separate PoE power sources. Lets call them PoE 1 and 2. Each PL-AT-TW1 accepts power from PoE 1 and passes PoE 2 to the output connector

PoE 1 Power Input

PoE 1 is the power for the LED attached to this device. It can be mode A 802.3af, 802.3at or 2 pair 802.3bt for up to 25 watts.

PoE 2 Power Input

PoE 2 is the optional power from a 802.3bt switch. It is passed thru the device to the next device in the chain to provide power to a second PL-AT-TW1 attached to the output connector. The output RJ45 moves the mode B input to Mode A output so no crossover is required.

Dimmer / Switch In

The device has a Switch input with a 10k pullup to 3.3v. When Open the LED is on, when closed the LED is off. If a PWM signal is applied (For example from a AL-WS-010v) then the LED can be dimmed. See the AL-WS-010v for a PWM wall switch. Use a RH-253, AL-WS-M momentary switches, or use a simple On/Off switch. Connect the switch between pins 7&8 of the output connector to create a On/Off/Dim switching ability. If a momentary switch is used, then each press will toggle the light on/off. If PoE power is cut and then started again – the Light will always come on. Hold the switch to cause the light to dim. Release to keep the color that was requested.

If two PL-AT-TW1 are connected onto one CAT-5e cable to the power source, see our application note for how to have one wall switch control 2 PL-AT-TW1